

Amendment and Response

Applicant: John Walter MacConnell

Serial No.: 10/722,899

Filed: November 26, 2003

Docket No.: M105.102.102

Title: TELEMETRY SYSTEM AND METHOD

IN THE CLAIMS

Please cancel claims 64 and 66 without prejudice.

Please amend claims 65, 67 and 69 as follows:

1. (Original) A telemetry system comprising:
an endpoint device configured to operably couple to a host device, the endpoint device comprising:
a receiver normally powered-off and configured to periodically power-on for a first time period and to remain powered on for a second time period in response to a signal strength of signals received during the first time period being at least equal to a threshold level, otherwise to power-off;
and
a transmitter configured to transmit an endpoint signal in response to the receiver receiving a wake-up signal during the second time period; and
a reader configured to transmit the wake-up signal and to receive the endpoint signal.
2. (Original) The system of claim 1, wherein the endpoint signal comprises information related to the operation of the host device and/or the endpoint device.
3. (Original) The system of claim 1, wherein the endpoint device is battery-powered.
4. (Original) The system of claim 3, wherein the battery is a size AA lithium battery, and wherein the battery has an expected battery-life of at least 10 years.
5. (Original) The system of claim 1, wherein in the receiver has a duty cycle of not more than 0.1 percent.
6. (Original) The system of claim 1, wherein in the receiver has a duty cycle of 100 percent.

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7. (Original) The system of claim 1, wherein the receiver comprises a superheterodyne receiver.

8. (Original) The system of claim 7, wherein the superheterodyne receiver has an average current consumption of approximately 10 microamps.

9. (Original) The system of claim 1, wherein the receiver is configured to power-on for the first time period at fixed intervals.

10. (Original) The system of claim 1, wherein the receiver is configured to power-on for the first time period at random intervals.

11. (Original) The system of claim 1, wherein the threshold level comprises a fixed level.

12. (Original) The system of claim 1, wherein the endpoint device further includes a controller coupled to the receiver and configured to measure the signal strength of the signals received during the first time period.

13. (Original) The system of claim 12, wherein the signal strength is measured at a selectable frequency.

14. (Original) The system of claim 12, wherein the controller is configured to measure the signal strength using received signal strength indication (RSSI) techniques.

15. (Original) The system of claim 1, wherein the controller is further configured to adjust the threshold level based on a measured signal strength of non-wake-up signals.

16. (Original) The system of claim 15, wherein the controller increases the threshold level in response to the measured signal strength being at least equal the threshold level, and decreases the threshold level in response to the measured signal strength being less than the threshold level.

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17. (Original) The system of claim 1, wherein the endpoint device transmitter has an output power of up to one hundred milliwatts.

18. (Original) The system of claim 1, wherein the endpoint device transmitter has an output power of at least one hundred milliwatts.

19. (Original) The system of claim 17, wherein the endpoint device is battery-powered and includes a storage capacitor to power the transmitter transmission of the endpoint signal so as to limit a drain on the battery.

20. (Original) The system of claim 1, wherein the transmitter of the endpoint device is configured to transmit the endpoint signal at fixed time intervals regardless of whether the receiver receives a wake-up signal.

21. (Original) The system of claim 1, wherein the wake-up signal instructs the endpoint device as to the composition of the information of the endpoint signal.

22. (Original) The system of claim 1, wherein the wake-up signal instructs the transmitter of the endpoint device to transmit the endpoint signal at a particular frequency.

23. (Original) The system of claim 1, wherein the reader further includes a global positioning system configured to provide a present geographic position of the reader, wherein the reader is configured to adjust a composition of the wake-up signal based on its present geographic position.

24. (Original) The system of claim 23, wherein the reader further includes a voice annunciation system configured to indicate when the endpoint device transmitter does not transmit an endpoint signal in response to a wake-up signal.

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25. (Original) An endpoint device comprising:
 - a receiver configured to be normally powered-off;
 - a controller configured to periodically power-on the receiver for a first time period and to keep the receiver powered-on for a second time period in response to a signal strength of signals received during the first time period being at least equal to a threshold level, otherwise to power-off the receiver until a subsequent first time period; and
 - a transmitter configured to transmit an endpoint signal in response to the receiver receiving a wake-up signal during the second time period, and
26. (Original) The system of claim 25, wherein the endpoint signal comprises information related to the operation of the host device and/or the endpoint device.
27. (Original) The system of claim 25, wherein the endpoint device is battery-powered.
28. (Original) The system of claim 25, wherein the endpoint device is AC mains powered.
29. (Original) The system of claim 27, wherein the battery is a size AA lithium battery, and wherein the battery has an expected battery-life of at least 10 years.
30. (Original) The system of claim 1, wherein in the receiver has a duty cycle of not more than 0.1 percent.
31. (Original) The system of claim 1, wherein the receiver comprises a superheterodyne receiver.
32. (Original) The system of claim 31, wherein the superheterodyne receiver has an average current consumption of approximately 10 microamps.

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33. (Original) The system of claim 25, wherein the receiver is configured to power-on for the first time period at fixed intervals.

34. (Original) The system of claim 25, wherein the receiver is configured to power-on for the first time period at random intervals.

35. (Original) The system of claim 25, wherein the threshold level comprises a fixed level.

36. (Original) The system of claim 1, wherein the controller is configured to measure the signal strength of signals received during the first time period.

37. (Original) The system of claim 36, wherein the signal strength is measured at a selectable frequency.

38. (Original) The system of claim 36, wherein the controller is configured to measure the signal strength using received signal strength indication (RSSI) techniques.

39. (Original) The system of claim 38, wherein the controller is configured to adjust the threshold level based on a measured signal strength of non-wake-up signals.

40. (Original) The system of claim 39, wherein the controller increases the threshold level in response the measured signal strength being at least equal to the threshold level and decreased the threshold level in response to the measures signal strength being less than the threshold level.

41. (Original) An automated meter reading system comprising:
an endpoint device configured to operably couple to a utility, the endpoint device comprising:
a superheterodyne (SH) receiver configured to be normally powered-off;
a controller configured to periodically power-on the SH receiver for a first time period and to keep the SH receiver powered-on for a second time period in

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response to a signal strength of signals received during the first time period being at least equal to a threshold level, otherwise to power-off the SH receiver until a subsequent first time period; and

a transmitter configured to transmit an endpoint signal in response to the receiver receiving a wake-up signal during the second time period, and

a reader configured to transmit the wake-up signal and to receive the endpoint signal.

42. (Original) The system of claim 41, wherein the endpoint signal comprises information related to the operation of the utility meter and/or the endpoint device; and

43. (Original) The system of claim 41, wherein the endpoint device is battery-powered.

44. (Original) The system of claim 41, wherein the battery is a size AA lithium battery, and wherein the battery has an expected battery-life of at least 10 years.

45. (Original) The system of claim 41, wherein the endpoint device is AC mains powered.

46. (Original) The system of claim 41, wherein the SH receiver has a duty cycle of not more than 0.1 percent.

47. (Original) The system of claim 41, wherein the SH receiver has an average current consumption of approximately 10 microamps.

48. (Original) The system of claim 41, wherein the controller is configured to power-on the SH receiver for the first time period at fixed intervals.

49. (Original) The system of claim 41, wherein the controller is configured to power-on the SH receiver for the first time period at random intervals.

50. (Original) The system of claim 41, wherein the threshold level is fixed.

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51. (Original) The system of claim 41, wherein the controller is configured to measure the signal strength of signals received during the first time period.

52. (Original) The system of claim 51, wherein the signal strength is measured at a selectable frequency.

53. (Original) The system of claim 51, wherein the controller is configured to measure the signal strength using received signal strength indication (RSSI) techniques.

54. (Original) The system of claim 53, wherein the controller is configured to adjust the threshold level based on a measured signal strength of non-wake-up signals.

55. (Original) The system of claim 54, wherein the controller increases the threshold level in response the measured signal strength being at least equal to the threshold level and decreased the threshold level in response to the measures signal strength being less than the threshold level.

56. (Original) The system of claim 41, wherein the endpoint device transmitter has an output power of up to one hundred milliwatts.

57. (Original) The system of claim 41, wherein the endpoint device transmitter has an output power of at least one hundred milliwatts.

58. (Original) The system of claim 56, wherein the endpoint device is battery-powered and includes a storage capacitor to power the transmitter transmission of the endpoint signal so as to limit a drain on the battery.

59. (Original) The system of claim 41, wherein the transmitter of the endpoint device is configured to transmit the endpoint signal at fixed time intervals regardless of whether the receiver receives a wake-up signal.

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60. (Original) The system of claim 41, wherein the wake-up signal instructs the endpoint device as to the composition of the information of the endpoint signal.

61. (Original) The system of claim 41, wherein the wake-up signal instructs the transmitter of the endpoint device to transmit the endpoint signal at a particular frequency.

62. (Original) The system of claim 41, wherein the reader further includes a global positioning system configured to provide a present geographic position of the reader, wherein the reader is configured to adjust a composition of the wake-up signal based on its present geographic position.

63. (Original) The system of claim 62, wherein the reader further includes a voice annunciation system configured to indicate when the endpoint device transmitter does not transmit an endpoint signal in response to a wake-up signal.

64. (Cancelled)

65. (Currently Amended) The method of claim 64-67 further comprising:
measuring the signal strength using received signal strength indication (RSSI) techniques.

66. (Cancelled)

67. (Currently Amended) The method of claim 66, further comprising: A method of operating a telemetry system, the method comprising:
maintaining a receiver of an endpoint device in a normally powered-off state;
powering on the receiver for a first period time period;
measuring a signal strength of signals received during the first time period;
maintaining the receiver in a powered-on state for a second time period in response to the signal strength being at least equal to a threshold level;

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transmitting an endpoint signal from the endpoint device in response to receiving a wake-up signal during the second time period; and

adjusting the threshold level based on the measured signal strength in response to a wake-up signal not being received during the second time period.

68. (Original) The method of 67, further comprising:

increasing the threshold level in response to the measured signal strength being at least equal to the threshold level; and

decreasing the threshold level in response to the measured signal strength being less than the threshold level.

69. (Currently Amended) The method of claim 6667, further comprising:

transmitting a wake-up signal instructing the endpoint device to transmit the endpoint signal at a specific frequency.